UWB and its Risks to C-Band Satellite Communications

Coalition of C-Band Constituents

Ex Parte Summary

November 30, 2004

Background

- 2002: FCC adopted MO&O allowing unlicensed operation of UWB devices in 7.5 GHz of bandwidth, which includes 0.5 GHz of the C-Band downlink frequencies (3700 – 4200 MHz).
- FCC expressed willingness to take necessary action to protect C-Band services if testing indicated that UWB devices would cause disruptive interference to authorized services.
- Based on the UWB industry's own projections as to proliferation of devices, UWB will cause disruptive interference to C-Band reception.
- OET's resistance to protection of C-Band reception appears predicated on a highly pessimistic estimate of the success of UWB and optimistic view of the location and nature of UWB deployments.

C-Band is the Primary Video Distribution Backbone

- C-Band is the primary means of delivering news, sports, information, and entertainment programming to MVPDs and, ultimately, to all US television viewers.

C-Band Stakeholders:

- Cable Networks
- Broadcast Networks
- Satellite Operators
- US Television Viewers

Significant Infrastructure and Investment in C-Band today:

- Current users and providers have invested $10B through 2020
  - Over 500 transponders on 21 US satellites[a]
  - 6 Broadcast Networks[b]
  - Over 415 Cable Networks[c]
  - Approximately 10,000 cable headends and 1,000 broadcast stations, each with multiple C-Band antennas and equipment investments
  - Over 500,000 C-Band DTH subscribers
  - Over 3,500 Hotels with C-Band antennas
  - Over 3,000 SMATV locations with C-Band antennas

[a] domestic satellites from 72º - 139º W.L.
[b] ABC, CBS, FOX, PBS, UPN, and WB
[c] 308 basic cable networks; 85 regional cable networks; 24 premium cable networks
Source: FCC 2002 Video Competition Report, and Broadcasting and Cable Factbook 2002-2003, pg. F-68.

C-Band Coalition Objectives

- Insure UWB and unlicensed devices can co-exist with C-Band with minimal risk of disruptive interference.
- Continue to use C-Band for nationwide delivery of television and radio.

Expected Popularity of UWB Consumer Devices

UWB industry projects proliferation of devices similar to that of common consumer items:

- television set-top boxes
- desktop computers
- cordless phones
- wireless computers
- handheld multimedia devices

C-Band Coalition's Concerns:

- History suggests a ubiquitous deployment of new UWB consumer devices in a short period of time.
- New UWB consumer devices are predicted to cause disruptive interference to television and radio program reception.
  - C-Band is the predominant means of television and radio satellite distribution
  - C-Band industry is heavily invested with long-term commitments by program networks and MVPDs
- If precautions are not taken now to minimize the risks of disruptive interference:
  - television and radio services will be severely disrupted
  - the C-Band industry will encounter insurmountable difficulty and expense trying to remedy the problems

C-Band Coalition Technical Assessment

- C-band Coalition commissioned ALION Science and Technology to model, validate, simulate, quantify, and demonstrate potential effects of UWB and lower adjacent band unlicensed devices on C-Band earth station receivers.
- C-Band reception failure commences when UWB devices operate at or above a density of 0.8 devices per acre within a five kilometer radius of C-Band earth stations.
- Effect on consumers: loss of digital television and radio reception; interference to analog television reception.

OET's Assumptions Are Unrealistic

- OET's assumptions of the number and extent of UWB devices ("density") and their location and how they will be used ("use profiles") are unrealistic, and its assumptions are inconsistent with the UWB industry's projections of the ubiquitous adoption of the devices.
- No parties, including OET, dispute the scientific measurements or calculations that the C-Band Coalition employed.
- Previous technologies (e.g., wireless cell phones) have been required and have succeeded in developing technical parameters to enable co-existence with other services.
- The C-Band Coalition's proposals are a win-win solution. C-Band satellite services will be protected and UWB consumer devices can still be deployed.

Recommendations to Mitigate the Risks of Interference

- Require high density UWB consumer devices (if they must operate at the emission power contemplated in the FCC's rules) to be designed to emit in other frequency bands (e.g., C-Band uplink band 5925-6425 MHz).
- If UWB consumer devices must operate in the C-Band receive frequencies, require devices to reduce emissions below the power level contemplated in FCC rules.
- We believe a 21 dB power reduction is appropriate.
- Require UWB consumer device manufacturers to certify that the emission level into the C-band is within the new limit.
- No changes to rules with respect to public safety devices and other non-consumer products, such as ground penetration radar.

The C-Band Coalition Member Companies

- A&E
- CBS
- C-SPAN
- Discovery
- E!
- Fox Network
- Fox Cable
- HBO
- iNDemand
- Lifetime
- MTV
- PanAmSat
- Scripps Networks
- SES Americom
- Showtime
- Starz!
- NBC Universal (USA)
- Warner Bros.